Figure C1:
Telephone Numbers Ported in California

Year	Month	As of January 1, 2001 Numbers Ported and still in effect	As of January 1, 2001 Cumulative	As of July 1, 2001 Numbers Ported and still in effect	As of July 1, 2001 Cumulative
1998	May	31	31	27	27
	June	15	46	15	42
	July	52	98	52	94
	August	1116	1214	928	1022
	September	2239	3453	2027	3049
	October	9383	12836	8767	11816
	November	33104	45940	29535	41351
	December	14547	60487	13235	54586
	January	13255	73742	10954	65540
	February	17143	90885	14974	80514
	March	31443	122328	24921	105435
	April	25173	147501	23643	129078
1999	May	27785	175286	25760	154838
	June	31884	207170	28801	183639
	July	32066	239236	28325	211964
	August	32581	271817	27406	239370
	September	33271	305088	30132	269502
	October	38924	344012	35899	305401
	November	32983	376995	29251	334652
	December	51612	428607	48420	383072
	January	78151	506758	74102	457174
	February	66377	573135	63146	520320
	March	60962	634097	57684	578004
	April	62975	697072	59289	637293
2000	May	72539	769611	68943	706236
	June	59493	829104	57012	763248
	July	71765	900869	68148	831396
	August	109042	1009911	105527	936923
	September	135415	1145326	130363	1067286
	October	122304	1267630	117080	1184366
	November	117972	1385602	113581	1297947
	December	131522	1517124	123387	1421334
	January			123519	1544853
	February			72751	1617604
	March			94413	1712017
	April			70180	1782197
2001	May			84346	1866543

Source: Local Number Portability Administrator (NeuStar, Inc.)

APPENDIX D

Wireless Phone Standards

There are a number of digital wireless standards being used today. The three primary ones are CDMA, TDMA, and GSM. These standards are critical elements of competition that impact manufacturing and other business strategies.

CDMA, or Code-Division Multiple Access, is a digital cellular technology, which that does not assign a specific frequency to each user unlike competing systems. Instead, every channel uses the full available spectrum and individual conversations are encoded with a pseudo-random digital sequence. CDMA was derived from a military technology first used during World War II.

TDMA, Time Division Multiple Access, is another technology for delivering digital wireless communications. TDMA works by dividing a radio frequency into time slots and then allocating slots to multiple calls. In this way, a single frequency can support multiple, simultaneous data channels.

GSM, Global System for Mobile Communications, uses narrowband TDMA, which allows eight simultaneous calls on the same radio frequency. GSM was first introduced in 1991 and as of the end of 1997, GSM service was available in more than 100 countries and has become the standard in Europe and Asia.

3G, is a specification for the third generation (analog cellular was the first, digital PCS the second) of mobile communications technology. 3G promises increased bandwidth, up to 384 Kbps when a device is stationary or moving at pedestrian speed, 128 Kbps in a car, and 2 Mbps in fixed applications. 3G will work over wireless air interfaces including GSM, TDMA, and CDMA. The exact form this standard will take is unknown but may resemble the so-called bridge technologies now in use such as WAP (wireless application protocol) or Europe's general packet radio service (GRPS). In any case, more radio spectrum is needed and currently auctions are being used to award new spectrum licenses to the highest bidding service providers.

Key points:

- CDMA is used mostly in the U.S. and has 10 times the capacity of analog.
- TDMA and GSM are essentially the same technology.
- TDMA is used mostly in the U.S., while GSM is the European standard.
- The rest of the world uses all available technologies.
- Both TDMA and GSM have 3 times the capacity of analog wireless.
- CDMA, TDMA, and GSM are each deployed in all major U.S. markets.
- 3G is a specification for third generation wireless communications technology that will enable greater user volume and area coverage without impacting speeds, among other benefits.
- Analog is still used in rural areas where it is not cost-effective to replace it with digital.
- CDMA is viewed as the most efficient technology, meaning lower capital expenditures on a per subscriber basis.

Carriers are using these technologies as follows:

CDMA: Sprint PCS, Verizon Wireless

TDMA: AT&T Wireless, SBC Communications Wireless, smaller providers

GSM: Voicestream (acquired by Deutsche Telekom), European companies

Figure E1

Wireline Applications/Petitions[1] for New CPCNs at CPUC: 1996-2001

SOURCE: CPUC log of telecommunications carrier CPCN registrations

	Jan. 1 - Dec. 31, 1996	Jan. 1- Dec. 31, 1997	Jan. 1- Dec. 31, 1998	Jan.1 - Dec. 31, 1999	Jan. 1- Dec. 31, 2000	Jan. 1- Dec. 31, 2001
Applications[2]/Petitions[3]	144	164	185	182	186	126
Total Registration	**144**	**164**	**185**	**182**	**186**	**126**

Wireless Carrier Registration at CPUC: 1996-2001

SOURCE: CPUC log of telecommunications carrier CPCN registrations

	Jan. 1 - Dec. 31, 1996	Jan. 1- Dec. 31, 1997	Jan. 1- Dec. 31, 1998	Jan.1 - Dec. 31, 1999	Jan. 1- Dec. 31, 2000	Jan. 1- Dec. 31, 2001
Registrations	45	45	21	17	16	13

[1] Wireline Carriers include both CLECs and IXCs.

[2] Applications: filed by those seeking license for resale and/or facilities based service

[3] Petitions: filed by those seeking facilities-based service